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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,876	12/26/2001	Young-chul You	1568.1035	7530

21171 7590 03/25/2004

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EXAMINER

QUARTERMAN, KEVIN J

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/025,876	Applicant(s) YOU ET AL.	
	Examiner Kevin Quarterman	Art Unit 2879	<i>aw</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1201</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's request for reconsideration of the restriction requirement of the last Office action is persuasive, since applicant has added a new linking claim. Therefore, the restriction requirement is withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 12-16 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Harkonen (US 5314759).
4. Regarding independent claim 12, Harkonen discloses a phosphor comprising a perovskite structure (col. 5, ln. 12) and samarium (col. 5, ln. 25-31). The Examiner notes that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim (MPEP § 2115). Thus, the claim recitation "an amount of said Sm is such that a luminescence of the phosphor at 1000 hours of usage is at least 40% of an initial luminescence" has not been given patentable weight.
5. Regarding claim 13, the claim recitation "the amount is such that the luminescence at 1000 hours of usage is at least 70% of an initial luminescence" has not been given patentable weight.

Art Unit: 2879

6. Regarding claim 14, the claim recitation "an amount is such that the initial luminescence is at least 65 Cd/m²" has not been given patentable weight.

7. Regarding claim 15, the claim recitation "the amount is such that the initial luminescence is at least 65 Cd/m²" has not been given patentable weight.

8. Regarding claim 16, the claim recitation "the amount is such that a luminescence at 600 hours of usage is at least 60% of the initial luminescence" has not been given patentable weight.

9. Regarding claim 23, Harkonen discloses a fluorescent display device comprising the phosphor (Abstract).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-11 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toki (US 5619098) in view of Harkonen (US 5314759).

12. Regarding independent claim 1, Toki discloses a phosphor comprising a perovskite structure comprising MTiO₃: (A, B), where M is an alkali earth metal, A is an element selected from the group consisting of cerium (Ce), praseodymium (Pr), europium (Eu), terbium (Tb), and thulium (Tm), and B is a Group IIIA element of the periodic table (col. 5, ln. 57-62).

Art Unit: 2879

13. Toki discloses each limitation of independent claim 1, as discussed above, but fails to exemplify the phosphor comprising samarium (Sm).

14. Harkonen teaches that it is known in the art to incorporate into a phosphor an activator-doping layer containing samarium (col. 5, ln. 25-31). Harkonen also discloses that this doping layer yields high efficiency and good stability of emission (col. 5, ln. 31-34).

15. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the phosphor of Toki with a activator-doping layer containing samarium, as taught by Harkonen, for increasing the efficiency of the phosphor.

16. Regarding claim 2, primary reference Toki discloses that the alkali earth metal is an element selected from the group consisting of magnesium (Mg), strontium (Sr), calcium (Ca), and barium (Ba) (col. 5, ln. 59).

17. Regarding claim 3, primary reference Toki discloses that the element A is added in an amount of 0.05-5mol% based on 1 mol of Ti (col. 6, ln. 6-7).

18. Regarding claim 4, primary reference Toki discloses that the Group IIIA element is an element selected from the group consisting of aluminum (Al), gallium (Ga), indium (In), and thallium (Tl) (col. 5, ln. 59).

19. Regarding claim 5, primary reference Toki discloses that the Group IIIA element is added in an amount of 0.05-80mol% based on 1 mol of Ti (col. 6, ln. 10-11).

20. Regarding claim 6, secondary reference Harkonen discloses a varying amount of samarium (col. 6, ln. 30-35).

Art Unit: 2879

21. Regarding claim 7, expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim (MPEP § 2115). Thus, the claim recitation “an amount of Sm is such that a luminescence of the phosphor at 1000 hours of usage is at least 40% of an initial luminescence” has not been given patentable weight.

22. Regarding claim 8, the claim recitation “the amount is such that the luminescence at 1000 hours of usage is at least 70% of an initial luminescence” has not been given patentable weight.

23. Regarding claim 9, the claim recitation “an amount of Sm is such that an initial luminescence is at least 65 Cd/m²” has not been given patentable weight.

24. Regarding claim 10, the claim recitation “the amount is such that the initial luminescence is at least 65 Cd/m²” has not been given patentable weight.

25. Regarding claim 11, the claim recitation “the amount is such that a luminescence at 600 hours of usage is at least 60% of the initial luminescence” has not been given patentable weight.

26. Regarding claim 17, primary reference Toki discloses the perovskite structure comprising MTiO₃: (A, B), where M is an alkali earth metal, A is an element selected from the group consisting of cerium (Ce), praseodymium (Pr), europium (Eu), terbium (Tb), and thulium (Tm), and B is a Group IIIA element of the periodic table (col. 5, ln. 57-62).

27. Regarding claims 18-20, secondary reference Harkonen discloses a varying amount of samarium (col. 6, ln. 30-35).

Art Unit: 2879

28. Regarding claim 21, primary reference Toki discloses a fluorescent display device comprising the phosphor (Abstract).

29. Regarding claim 22, primary reference Toki discloses that the fluorescent display device is one of a field emission display and a vacuum fluorescent display (col. 2, ln.

67).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

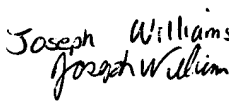
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Quarterman
Examiner
Art Unit 2879

kq 
16 March 2004

Nimesh Patel
Supervisory Patent Examiner
Art Unit 2879


for